

***Closure Report for the  
Groundwater Treatment Facility,  
Test Area North, Operable Unit  
1-07B***

**Idaho  
Completion  
Project**

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Bechtel BWXT Idaho, LLC

***October 2004***

ICP/EXT-04-00634  
Revision 0  
Project No. 23339

**Closure Report  
for the Groundwater Treatment Facility,  
Test Area North, Operable Unit 1-07B**

**October 2004**

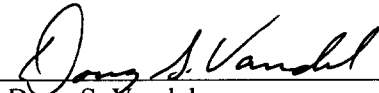
**Idaho Completion Project  
Idaho Falls, Idaho 83415**

**Prepared for the  
U.S. Department of Energy  
Assistant Secretary for Environmental Management  
Under DOE Idaho Operations Office  
Contract DE-AC07-99ID13727**

**Closure Report  
for the Groundwater Treatment Facility,  
Test Area North, Operable Unit 1-07B**

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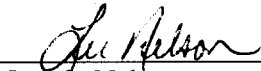
Approved by



Doug S. Vandel  
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10/7/04

Date



Lee O. Nelson  
OU 1-07B Project Manager

10/7/2004

Date

## **ABSTRACT**

This report documents the closure of the Operable Unit 1-07B Groundwater Treatment Facility at Test Area North (TAN-1748) at the Idaho National Engineering and Environmental Laboratory. This activity began in November 2003 and was completed in June 2004. The primary objectives of this activity were to eliminate potential safety hazards and dismantle and dispose of the Groundwater Treatment Facility's process equipment, tanks, and piping. As required in the applicable Operable Unit 1-07B project documents, the treatment system was rinsed, disassembled, removed, and properly disposed of. The tent structure that housed the treatment system has been left intact to support other Idaho National Engineering and Environmental Laboratory activities. All waste streams generated during this activity have been properly profiled and disposed of.



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## ACRONYMS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
D&D	decontamination and dismantlement
DOE-ID	U.S. Department of Energy Idaho Operations Office
FTL	field team leader
GWTF	Groundwater Treatment Facility
ICDF	INEEL CERCLA Disposal Facility
ICP	Idaho Completion Project
INEEL	Idaho National Engineering and Environmental Laboratory
ISB	in situ bioremediation
IWCP	Integrated Work Control Process
MCP	management control procedure
NPTF	New Pump and Treat Facility
OU	operable unit
PLN	plan
STD	standard
TAN	Test Area North
TCE	trichloroethene
TSF	Technical Support Facility
USC	<i>United States Code</i>
WO	work order





# Closure Report for the Groundwater Treatment Facility, Test Area North, Operable Unit 1-07B

## 1. INTRODUCTION

This report documents the closure of the Operable Unit (OU) 1-07B Groundwater Treatment Facility (GWTF), located at Test Area North (TAN) Building 1749, at the Idaho National Engineering and Environmental Laboratory (INEEL). The facility has been decontaminated and all associated equipment has been dismantled and properly dispositioned. This report provides background related to the decision to discontinue GWTF operations (Section 2) and identifies the applicable Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC § 9601 et seq.) closure requirements (Section 3). The decontamination and dismantlement (D&D) activities that were conducted are summarized in Section 4, while final disposition of the waste is discussed in Section 5. Section 6 provides a description of the final site conditions and Section 7 provides a statement of compliance with the applicable closure requirements.

## 2. BACKGROUND

The GWTF was put into service in February 1994 as an interim action. The primary objective of the system was to hydraulically contain the highest area of contamination near the historic Technical Support Facility (TSF) injection well (TSF-05). The interim action was referred to as OU 1-07A. The GWTF system was designed to extract water from TSF-05 and treat the contaminated groundwater at a rate of 50 gal/min (189 L/min). The GWTF used solids removal, air stripping, carbon adsorption, and ion exchange to treat the extracted groundwater for volatile organic compounds, radionuclides, and metals. Initially, the treated water was pumped to the TSF-07 evaporation pond for disposal. However, shortly after the start of operations, the system was modified so that the treated water was disposed of into a new injection well located within the TSF-05 source area (TAN-31 well). The GWTF, as well as a field laboratory, was housed in four sea-land containers enclosed in a membrane-covered Sprung® structure.

*The Record of Decision Declaration for the Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites Final Remedial Action, Operable Unit 1-07B Waste Area Group 1* (DOE-ID 1995) directed that pump-and-treat technology be used to restore the groundwater contaminant plume and that treatability studies be conducted concurrently to evaluate alternative treatment technologies. The final remedial action selected in the Record of Decision (DOE-ID 1995), referred to as OU 1-07B, consisted of three distinct phases, as follows:

1. Phase A—covered the transition of the OU 1-07A interim action to the OU 1-07B final remedial action
2. Phase B—consisted of hot spot containment and/or removal with treatability studies
3. Phase C—included dissolved-phase groundwater treatment with continuation of hot spot containment and/or removal.

*The Phase C Remedial Action Work Plan for Test Area North Final Groundwater Remediation, Operable Unit 1-07B* (DOE-ID 1999) required that the GWTF (or an alternate treatment system) be operated until the treatability studies could be completed and the Agencies could make a final decision on

the remedy for the “hot spot,” that is the area nearest the TSF-05 injection well contaminated at levels greater than 20,000 µg/L trichloroethene (TCE).

In November 1998, the Air Stripper Treatment Unit was put into service at a location downgradient from the hot spot, which allowed the GWTF to be put into standby mode while the field evaluation of in situ bioremediation (ISB) was conducted in the upgradient portion of the plume near TSF-05. The Air Stripper Treatment Unit was designed to be a temporary system and was later replaced by the New Pump and Treat Facility (NPTF). Based on the success of the field evaluation, the Record of Decision was eventually amended to specify ISB, NPTF, and monitored natural attenuation as the final remedy components (DOE-ID 2001). In October 2002, all filters were removed from the GWTF and the system was flushed with potable water until TCE concentrations in the effluent fell below detection limits.<sup>a</sup> At that time, with agreement from the regulatory agencies, regular inspections of the system were curtailed.<sup>b</sup>

### **3. REQUIREMENTS FOR DECONTAMINATION AND DISMANTLEMENT**

The Remedial Action Work Plan (DOE-ID 1999) included specific requirements for final D&D and closure of the treatment system at the time that it was no longer required. The Remedial Action Work Plan specified that the facilities built to remediate OU 1-07B (i.e., all tanks, containers, piping, and equipment) were to be flushed with clean water to remove as much contamination as possible. The system was to be dismantled and decontaminated for reuse or was to be properly disposed of. The Remedial Action Work Plan stated that the site was to be returned to its preoperational condition to the extent feasible considering cost and intended future use. Monitoring wells still in use were to be left operational. The Remedial Action Work Plan also required that a more detailed D&D plan be developed to direct the work activities. The subsequent *Decontamination and Dismantlement Plan for the Groundwater Treatment Facility* (INEEL 2003) identified the tasks that were required to decontaminate and dismantle the GWTF. The project objectives of the D&D Plan were to:

- Eliminate potential safety hazards related to the GWTF equipment and components
- Remove the potential for exposure to hazardous and radioactive contaminants
- Package and dispose of all hazardous and radioactive waste located within the GWTF
- Remove the GWTF system, including all process piping, equipment, tanks, structures, and enclosures.

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a. K. E. Hain (DOE), letter to W. Pierre (EPA) and D. Nygard (IDEQ), “Curtailed of Groundwater Treatment Facility Daily Inspections,” EM-ER-02-173, October 15, 2002.

b. D. Nygard (IDEQ), letter to K. Hain (DOE), “Curtailed of Groundwater Treatment Facility Daily Inspections,” EM-ER-02-173, October 23, 2002.

## 4. SUMMARY OF DECONTAMINATION AND DISMANTLEMENT ACTIVITIES

Planning and design for the GWTF D&D project began in September 2003. Field operations at the GWTF began in October 2003 and were completed in June 2004. All activities were completed 1 month ahead of the schedule, as identified in the D&D Plan (INEEL 2003). All work was performed in accordance with INEEL requirements and procedures, as outlined in the D&D Plan and in task-specific work orders prepared in compliance with INEEL work control requirements. In addition, safe work permits, job safety analyses, and radiological work permits were prepared to provide additional requirements and procedures for specific tasks. Project documentation (including the D&D Plan, hazard analysis, and the environmental checklist) was prepared and approved in accordance with the appropriate INEEL and Idaho Completion Project (ICP) procedures and policies.

All equipment was flushed, dismantled, and resized as necessary according to the Remedial Action Work Plan (DOE-ID 1999) and D&D Plan (INEEL 2003). Interior mechanical and electrical equipment, lighting, fire protection and alarm systems, accessible utility piping and associated equipment, and process piping inside the cargo containers were removed and disposed of (Figure 1). The holding tanks and associated piping were sized for disposal. The 20,000-gal tank was cut in half (horizontally) and used as a container for sized tank pieces and other debris (Figure 2). The total cost for the GWTF D&D project was approximately \$150,000. Appendix A provides a more detailed description of the D&D work activities.



Figure 1. Dismantlement and removal of process equipment.





Figure 2. Waste debris temporarily stored in sized 20,000-gal holding tank.

During the project, personnel exposure to radiological and chemical hazards was minimized through the implementation of engineering and administrative controls, the use of personal protective equipment, and personnel monitoring. No exposures in excess of applicable permissible exposure and applicable action limits for any hazardous chemicals or materials resulted from the D&D operations. There were no recordable radiation exposures.

## **5. EQUIPMENT DISPOSITION**

Equipment disposition involved characterizing, removing, packaging, and transporting all of the components and contents of the treatment system for appropriate disposal. Waste determination and disposition forms were prepared for all waste streams generated (Appendix B). The types of waste generated, their quantities, and final disposition are summarized in Table 1. The four generated waste streams included debris, sludge, resin, and water.

Table 1. Waste generated during Groundwater Treatment Facility decontamination and dismantlement activities.

Waste Type	Quantity	Disposition
Debris	130 yd <sup>3</sup>	ICDF
Sludge and tank bottoms	320 gal	ICDF
Ion exchange resin	7 gal	ICDF
Water	1,300 gal <sup>a</sup>	NPTF

a. The volume of water is approximated.

ICDF = INEEL CERCLA Disposal Facility

NPTF = New Pump and Treat Facility

The debris generated during this project consisted of piping, flanges, pumps, valves, sized tank pieces, various metal pieces, poly tubing, wiring, personal protective equipment, plastic, and other small debris items. The debris was containerized into seven 20-yd<sup>3</sup> roll-off metal containers. The debris was characterized as mixed low-level waste. Based on an evaluation of analytical data, process knowledge, and the potential for organic contamination still associated with these items, the waste was determined to meet land disposal restriction treatment standards and was direct disposed of at the INEEL CERCLA Disposal Facility (ICDF) in August 2004 (Appendix C). In addition to the roll-offs, debris also was packaged in one of the sized tank pieces and disposed of at the ICDF in September 2004 (Appendix C).

A mixture of scale and sludge was found in the bottom of GWTF Tanks T-1, T-2, and T-3 (Figure 3). Each of these tanks was cut horizontally and then had heat applied to them in order to thaw and melt ice that had accumulated in the bottom. Once the ice had melted, the residual water was pumped out of the tanks into a temporary poly tank and then re-processed through the NPTF. Absorbent was added to the remaining sludge to absorb any free liquids. The sludge was then transferred to containers and temporarily accumulated until sample analysis results were available. Based on results of the analysis, the sludge material was characterized as mixed low-level waste with TCE concentrations below the land disposal restriction treatment standard. This material was direct disposed of at the ICDF in August 2004 (Appendix C).

Ion exchange resin was frozen with rinse water inside various pieces of piping. In order to remove the resin, the piping was placed in secondary containment and heated to melt the ice. Once the ice had melted, the water was pumped out of the containment and re-processed through the NPTF. The resin was containerized and temporarily accumulated until the waste profile could be completed and the waste receipt scheduled at the ICDF. The resin material was characterized as mixed low-level waste and disposed of at the ICDF in August 2004 (Appendix C). All water that was generated from the flushing of the treatment system components was containerized and processed through the NPTF.



Figure 3. Sludge and scale being removed from the holding tank.

## **6. FINAL SITE CONDITION**

All GWTF process tanks, piping, and components have been removed from the site. There is no GWTF-related equipment or debris remaining inside or outside of the Sprung® structure. Because there was no knowledge or visual evidence of leaks or spills that could have contaminated the underlying soil, confirmatory sampling was not required in accordance with the D&D Plan (INEEL 2003). The Sprung® structure itself will be relocated to support OU 1-10 field activities at TAN. Figures 4 and 5 illustrate the final condition of the GWTF.





Figure 4. Final site conditions inside the Groundwater Treatment Facility after decontamination and dismantlement activities.



Figure 5. Final site conditions outside the Groundwater Treatment Facility after decontamination and dismantlement activities.



## 7. CONCLUSION

All activities identified in the Remedial Action Work Plan (DOE-ID 1999) and D&D Plan (INEEL 2003) were successfully completed. The air stripper sump, auxiliary sump, multimedia filter, and cleanup system tank were disassembled, thoroughly cleaned, and properly disposed of. All interior mechanical electrical lighting, fire protection, process pipes, tanks, sumps, heating and ventilation systems, laboratory equipment, and other associated equipment were emptied, rinsed, and properly disposed of. Radiological screening was performed to ensure that all debris met applicable release limits. There is no knowledge or evidence of spills or leaks that could have contaminated the underlying soil. The Sprung® structure has been transferred to the OU 1-10 project and will be relocated for continued use. All applicable closure requirements under the Remedial Action Work Plan and D&D Plan have been met. Based on the information presented in this report, the former GWTF area is no longer considered a CERCLA area.

## 8. REFERENCES

- 42 USC § 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*, December 11, 1980.
- DOE-ID, 1995, *Record of Decision Declaration for the Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites Final Remedial Action, Operable Unit 1-07B, Waste Area Group 1*, Document No. 10139, U.S. Department of Energy Idaho Operations Office, August 1995.
- DOE-ID, 1999, *Phase C Remedial Action Work Plan for Test Area North Final Groundwater Remediation, Operable Unit 1-07B*, DOE/ID-10679, Rev. 0, U.S. Department of Energy Idaho Operations Office, October 1999.
- DOE-ID, 2001, *Record of Decision Amendment Technical Support Facility Injection Well (TSF-05) and Surrounding Groundwater Contamination (TSF-23) and Miscellaneous No Action Sites, Final Remedial Action*, DOE/ID-10139 Amendment, Rev. 0, U.S. Department of Energy Idaho Operations Office, September 2001.
- INEEL, 2003, *Decontamination and Dismantlement Plan for the Groundwater Treatment Facility*, INEEL/EXT-03-00286, Rev. 0, Idaho National Engineering and Environmental Laboratory, September 2003.

## **Appendix A**

### **2004 Decontamination and Dismantlement Activities at the TAN-1748 Groundwater Treatment Facility**



## **Appendix A**

# **2004 Decontamination and Dismantlement Activities at the TAN-1748 Groundwater Treatment Facility**

## **A-1. INTRODUCTION**

This appendix provides a narrative of the decontamination and dismantlement (D&D) activities that were performed to close the Groundwater Treatment Facility (GWTF), Building 1748, at Test Area North (TAN) at the Idaho National Engineering and Environmental Laboratory (INEEL).

## **A-2. Decontamination and Dismantlement Activities**

This section describes the activities that were completed for project management (Section 2.1), project preparation (Section 2.2), site preparation (Section 2.3), removal of equipment and structures (Section 2.4), and site cleanup and demobilization (Section 2.5).

### **A-2.1 Project Management**

The management/engineering for the TAN-1748 D&D project was performed by the Inactive Sites Project under the Idaho Completion Project (ICP) directorate at the INEEL. The management planning and control approach was identified in Section 4 of the *Decontamination and Dismantlement Plan for the Groundwater Treatment Facility* (INEEL 2003).

The Inactive Sites project manager was responsible for the overall direction of the D&D Program at the INEEL. Engineering support was coordinated by the Inactive Sites project engineer with delegated responsibility provided by the TAN-1748 D&D task lead. Support for field activities was coordinated by the D&D field operations lead with delegated responsibility provided by the TAN-1748 field team leader (FTL).

The TAN-1748 D&D task lead was responsible for management and planning of all D&D work at the task site to ensure completion of the project within budget, on schedule, and in compliance with all safety and environmental regulations. The D&D task lead coordinated all document preparation, including planning, cost estimating, scheduling, and dealing with environmental and safety concerns. The D&D task lead also was responsible for tracking and reporting the progress and status of the project.

The TAN-1748 FTL was responsible for the safe and successful completion of the project by managing field operations and executing the work plan. The FTL was responsible for establishing and enforcing task site controls, documenting site activities, and conducting daily safety briefings. The FTL maintained the FTL logbook and site attendance log. The FTL supervised task site personnel, including crafts support assigned to the job. The FTL also interfaced with the field support organization, including the assigned industrial hygienist, safety engineer, fire protection engineer, radiological control support personnel, environmental support personnel, and Waste Generator Services personnel to accomplish the work activities.

Analyses of samples collected for characterization were performed by off-Site laboratories. The off-Site and on-Site Radioactive Materials Laboratory was used for radiological sample analysis. Detailed cost estimates and schedules were completed at the beginning of the project. The TAN-1748 D&D task lead was responsible for monitoring the actual costs and work performance as they compared to the planned estimate and schedule.

All work was performed in accordance with INEEL requirements and procedures, as outlined in the D&D Plan (INEEL 2003) and in task-specific work orders (WOs) prepared in compliance with INEEL work control requirements, including Standard (STD) -101, "Integrated Work Control Process." In addition, safe work permits, job safety analyses, and radiological work permits were prepared to provide additional requirements and procedures for specific tasks. Project documentation (including the D&D Plan, hazard analysis, and the environmental checklist) was prepared and approved in accordance with the appropriate INEEL and ICP procedures and policies.

## **A-2.2 Project Preparation**

Before D&D operations at TAN-1748 could proceed, numerous planning and preparation documents and determinations were required. The following sections describe the preparation documents that were completed before fieldwork was initiated.

### **A-2.2.1 Davis-Bacon Determination**

In compliance with Management Control Procedure (MCP) -2874, "Davis-Bacon Applicability Review Process," INEEL Form 431.38, "INEEL Davis-Bacon Committee Case Record," was submitted for a Davis-Bacon determination on the projected work scope for the TAN-1748 project (see Decision No. 03-109). The Davis-Bacon ruling determined that the TAN-1748 D&D project was noncovered work.

### **A-2.2.2 Decontamination and Dismantlement Plan**

The D&D Plan (INEEL 2003) identified specific project tasks and requirements for all D&D activities at the project site, outlined the general work scope and project objectives, and served as the primary project management plan. The D&D Plan contained specific requirements to carry out the work scope as well as project health and safety requirements.

### **A-2.2.3 Hazard Classification and Safety Documentation**

The D&D activity at TAN-1748 was designated as "not requiring additional safety analysis." Work was performed with no additional safety documentation required, beyond company procedures, in accordance with MCP-2451, "Safety Analysis for Other Than Nuclear Facilities." The controls to mitigate work hazards will be implemented through the use of WOs, radiological work permits, and other procedures and documentation that have been reviewed by qualified safety and health personnel. The project WOs and procedures will provide mitigation requirements for the project's hazards and risks.

Work by craft personnel was performed in accordance with STD-101, which provides the requirements for the Integrated Work Control Process (IWCP) at the INEEL. The IWCP is the method by which the Integrated Safety Management System and Voluntary Protection Program are implemented for maintenance and for construction projects. The IWCP establishes the process by which all maintenance work and project WOs for construction, deactivation, decontamination, decommissioning, and ICP work is screened consistently to uniform criteria to ensure that hazards are appropriately identified, analyzed, and controlled (PLN-1053). Work packages were written containing specific health and safety requirements. Safety personnel reviewed WOs, task documentation, procedures, and subcontracts to ensure that INEEL and Occupational Safety and Health Administration guidelines were properly incorporated. All D&D activities were conducted in accordance with prescribed safety procedures. In addition, safety personnel provided input and control through the approval of safe work permits. Radiological control support personnel controlled all work performed in radiologically contaminated work areas and verified that all radiological control rules and guidelines were followed.

#### **A-2.2.4 National Environmental Policy Act Documentation**

In compliance with the requirements of the National Environmental Policy Act (42 USC § 4321 et seq.), an environmental checklist (INEEL Form 451.01) was prepared and approved for the TAN-1748 project (Environmental Checklist Document No. TAN-03-003). The proposed action qualified as a categorical exclusion under the National Environmental Policy Act.

#### **A-2.2.5 State Historic Preservation Document**

Because TAN-1748 was not eligible for nomination to the National Register of Historic Places, a cultural/historic resources waiver was obtained before work began on TAN-1748.

#### **A-2.2.6 Work Orders**

Each of the tasks performed at TAN-1748 was accomplished using approved WOs prepared in accordance with the requirements of STD-101. The WOs defined the work, required reviews, the job steps and the required actions to mitigate potential hazards, and access control interface requirements. Safety, environmental support, facility engineer, industrial hygiene, and radiological control support personnel—as well as the TAN-1748 D&D task lead, construction coordinator, and the facility manager—reviewed and approved the WOs as required.

Work performed at the task site included preparation of the following WOs:

- Minor Maintenance WO#-40509—to remove the Emergency Notification System speaker
- Planned WO#-74816—to remove interior equipment and components.

#### **A-2.2.7 Field Sampling Plan**

Waste Generator Services generated a Field Sampling Plan as a guide for the collection of samples for laboratory analyses to use in material and waste characterization and disposal. The Field Sampling Plan provided guidance for obtaining representative, technically defensible data and maintaining sample integrity. Characterization efforts were performed by Waste Generator Services under Plan ESP-043-04.

### **A-2.3 Site Preparation**

Before removal activities were performed inside TAN-1748, D&D personnel set up the task site and mobilized equipment to perform the work. The work zone was set up using rope barriers and signs stating access requirements. No personnel were allowed inside the task site boundaries without first signing the attendance roster and wearing the appropriate personal protective equipment based on the expected hazards to be encountered. Original copies of the attendance roster were placed in the project data file to be archived.

Mitigation of biological hazards was implemented to protect the safety and health of workers during D&D activities that would disturb areas of rodent droppings. Mitigation included the spraying of bleach solution for rodent droppings and removal of rodent carcasses for possible hantavirus. The support of radiological control technicians on the TAN-1748 D&D project was instrumental in identifying contaminated conditions and contaminated areas during routine surveys. During the course of the project, a number of areas and pieces of equipment within the facility (i.e., interior of the three holding tanks and process piping) were surveyed and determined to contain radiological contamination.

## **A-2.4 Removal of Equipment and Structures**

Before removing any systems or equipment from the structure, workers verified that the equipment had been appropriately isolated and de-energized according to INEEL requirements and procedures.

The items removed and disposed of included:

- Interior mechanical and electrical equipment
- Lighting
- Fire protection and alarm systems
- Accessible utility piping and equipment
- Process piping inside the cargo containers.

The holding tanks and associated piping were sized and disposed of according to INEEL requirements and procedures. The 20,000-gal tank was cut in half (horizontally) and used as a container for sized tank pieces and other debris. The sea-land cargo containers were transferred to the Central Facilities Area to be reused, if possible.

## **A-2.5 Site Cleanup and Demobilization**

The management of waste generated during D&D operations was briefly discussed in the previous sections. Waste determination and disposition forms (Form 435.39) were prepared for all waste generated. Waste determination involved characterizing, removing, packaging, and transporting the waste to an appropriate disposal site in accordance with INEEL procedures and requirements. Waste Generator Services supported the completion of waste stream removal and disposal.

The original work scope of the D&D Plan (INEEL 2003) identified the removal of the treatment facility and the Sprung® structure. However, the end state was changed to leave the Sprung® structure intact to support ongoing Operable Unit (OU) 1-10 activities at TAN. Final project documentation has been completed, including this narrative and preparation of the final D&D project data files and photos for inclusion in the ICP optical imaging system for permanent record storage.

## **A-3. CONCLUSION**

The TAN-1748 process tanks, piping, and components have been removed and containerized for proper disposal at the INEEL CERCLA Disposal Facility. The Sprung® structure is intact and will be transferred to the OU 1-10 project for reuse. A project data package containing all project reports, work orders, procedures, and other documentation has been submitted to the INEEL ICP Administrative Record and Document Control for storage. The D&D project site photography was performed by project personnel. All photos will be retained as part of the project file.

During the project, exposures to personnel from radiological and chemical hazards were minimized through the implementation of engineering and administrative controls, the use of personal protective equipment, and personnel monitoring. The actual total project exposure was equal to 0 mR. No exposures in excess of applicable permissible exposure limits for any hazardous chemicals or materials resulted from D&D operations. No exposures in excess of the applicable action limits were detected. All field activities were completed ahead of schedule and under budget.

## A-4. REFERENCES

- 42 USC § 4321 et seq., 1970, “National Environmental Policy Act of 1969,” *United States Code*, January 1, 1970.
- Form 431.38, 1999, “INEEL Davis-Bacon Committee Case Record,” Rev. 2, Idaho National Engineering and Environmental Laboratory, October 1999.
- Form 435.39, 2000, “INEEL Waste Determination & Disposition Form (WDDF),” Rev. 4, Idaho National Engineering and Environmental Laboratory, March 2000.
- Form 451.01, 2004, “Environmental Checklist,” Rev. 11, Idaho National Engineering and Environmental Laboratory, March 2004.
- INEEL, 2003, *Decontamination and Dismantlement Plan for the Groundwater Treatment Facility*, INEEL/EXT-03-00286, Rev. 0, Idaho National Engineering and Environmental Laboratory, September 2003.
- MCP-2451, 2001, “Safety Analysis for Other Than Nuclear Facilities,” Rev. 2, *Manual 10B—Engineering and Research*, Idaho National Engineering and Environmental Laboratory, April 2001.
- MCP-2874, 2002, “Davis-Bacon Applicability Review Process,” Rev. 3, *Manual 7—Project Management*, Idaho National Engineering and Environmental Laboratory, November 2002.
- PLN-1053, 2003, “Deactivation, Decontamination, and Decommissioning Project Manager’s Handbook,” Rev. 2, Idaho Completion Project, November 2003.
- STD-101, 2004, “Integrated Work Control Process,” Rev. 16, *Manual 6—Maintenance*, Idaho National Engineering and Environmental Laboratory, August 2004.





**Appendix B**

**Waste Determination and Disposition Forms**



# INEEL WASTE DETERMINATION & DISPOSITION FORM (WDDF)

436.39  
03/03/2000  
Rev. 04

General Instructions:

Waste Stream Name:

TAN Groundwater Treatment Facility Spent Ion Exchange Resin

Material Profile Number: 1938A.R1

WDDF Number (Optional): TAN-500

Charge #: 1003177GB

Waste Stream Contacts					
Contact:	Name	E-Mail	Phone	Pager	MS
Generator:	Lee Nelson	lnelson	6-3093	3940	7730 9210
Facility Rep.:	Marshall Moxfor	mmfmr	6-2581	6610	6324 3921
				Technical Specialist:	Lawrence Izzo
				Independent Reviewer:	John Harris

## SECTION E: PROCESS KNOWLEDGE EVALUATION (Completed by the generator with assistance from the Facility Representative)

1. Waste Generation Location: Facility: TAN Building/Room: GWTF Area: QU 1-07B If applicable: Container #: Type/size:
2. Process and Waste Description: (Attachment included: ☐ Yes ☒ No)  
This waste was generated during the removal of the resin material from the ion exchange columns in the TAN Groundwater Treatment Facility (GWTF). The TAN GWTF is a pump and treat facility that was built to remediate groundwater plume caused by contamination in injection well TSF-05. The GWTF and its main processes are currently being decommissioned. The TAN groundwater pumped through the ion exchange columns has been known to contain trichloroethylene (TCE) from a failed waste process prior to discharge to the groundwater. Therefore, the ion exchange columns are considered to be contaminated with the listed waste and will carry the F001 listed waste code. Since the groundwater is also considered to be radiologically contaminated, this material is characterized as mixed low-level waste.

3. Where any waste minimization activities a part of this process: ☐ Yes ☒ No (If Yes, provide description or reference.)

4. Generation Status: ☐ Anticipated ☒ Existing ☐ Routine operations ☒ Cleanup/Stabilization Activities ☒ One Time Only ☐ On-going ☐ Secondary

5. Other generation information:

6. Physical Description (check all that apply): Color: black ☒ Solid ☐ Organic Liquid ☐ Sludge ☐ Gas Cylinder ☐ Multi Layered

7. Sources used for process evaluation (e.g. MSDS, operational logs, procedures, analyses): analyses, process knowledge

8. Waste Characteristics: Note: The waste characteristics may not be known at time of initial determination. If required for treatment or characterization, those parameters will be identified at a later date.

Liquids		Solids		All	
a. pH (aqueous only): <input type="checkbox"/> < 2 <input type="checkbox"/> > 12.5 <input checked="" type="checkbox"/> > 2 or < 12.5	Method: <input checked="" type="checkbox"/> NA	h. Ashes: If yes, is it friable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	r. PCBs: If Yes, provide concentrations (actual & source) in composition table. PCBs Bulk Product? (40 CFR 761.62)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
b. Flash Point: <input checked="" type="checkbox"/> NA	Method: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	i. Pyrophoric (Water Reactive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	s. Sulphide $\geq$ 500 mg/kg	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
c. Total suspended solids < 1%	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	j. Flammable Solid	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	t. Cyanide $\geq$ 250 mg/kg	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
d. Is total organic carbon < 1%	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	k. Free liquids: If Yes, quantity volume %	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	u. Oxidizer	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
e. Flaming Acid/Alkaline Gases	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	l. RCHN Debris (>60 mm) ( $\geq$ 50% by mass) inspection) or non-RCHN Rubble	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	v. Treatment Residue	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
f. Pyrophoric (Air Reactive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	w. Explosive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	x. Radioactive	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA

# UNCL WASTE DETERMINATION & DISPOSITION FORM (WDDF)

03/03/2000  
Rev. 04

Waste Stream Name: **TAN Groundwater Treatment Facility Spent Ion Exchange Resin** Material Profile Number: **1938A-RI**

g. Water Reactive: ☐ Yes ☐ No ☒ NA m. Pyrophoric (Air Reactive): ☐ Yes ☒ No ☐ NA u. Halogens (Cl, F, Br): ☐ Yes ☒ No ☐ NA

11. Waste Composition: (Must total 100%). Attachment Included: ☐ Yes ☒ No ☐ NA

Constituent	CAS No.	Analysis or PK	Range (If constituent is <1%, use mg/kg or mg/L, otherwise report in %)	Used as a Solvent? (Y/N)	Comments
Resin material		PK	From 94 To 99 %wt	N	
Aqueous Absorbent		PK	1 6 %wt	N	
Kimwipes and sample jars		PK	0 2 %wt	N	

12. Radioisotopes: Are radioisotopes present? ☒ Yes, if Yes, refer to attachment ☐ No, if No, include aligned form 435.02

SECTION II: PROBABLE WASTE TYPE: (Completed by the Facility Representative and used to assign waste technical specialist and for appropriate management until final waste determination is made.)

Based on evaluation of the process and available data the waste type indicated is (check all that apply):

☐ Hazardous Only ☒ Mixed ☐ Radioactive Only ☐ Conditional Industrial ☐ Used Oil  
☐ Material Exchange ☐ Lab Pack ☐ Non-conditional Industrial ☐ TSCA ☐ Other - Describe:  
☐ Recyclables ☐ Non Radioactive Lead (>99+ % Lead) ☐ Lead Batteries ☐ Silver ☐ RCRA Scrap metal ☐ Other - Describe:

Indicated Waste Codes: F001

## CERTIFICATION

I certify that the information in Section I of this form and the applicable attachments are fully disclosed. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified. The WGS Facility Representative, based on information provided, has assigned a probable waste type in Section II.

Lee Nelson  
Generator Name  
Typed/Printed

*Lee Nelson*  
Signature

1/17/03  
Date

Marshall Major  
WGS Facility Representative Name  
Typed/Printed

*Marshall Major*  
WGS Facility Representative  
Signature

1/23/03  
Date

# INEEL WASTE DETERMINATION & DISPOSITION FORM (WDDF)

435.39  
03/03/2000  
Rev. 04

<b>SECTION III WASTE DETERMINATION AND DISPOSITION</b> (Completed by the WGS Technical Specialist)	
<b>A. Waste Determination</b>	
1. Is this a solid waste (per 40 CFR 261.2)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, attach regulatory citation)	
2. Is this a Hazardous Waste (per 40 CFR 261.3)? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
3. Is waste excluded from regulation under 40 CFR 261.4? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, Regulatory citation: _____)	
4. Is waste subject to 40 CFR 268 regulations? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, is the waste a: <input type="checkbox"/> Waste Water or <input checked="" type="checkbox"/> Non Waste Water.	
5. Is there a specified method of treatment? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, list the specified method: _____)	
6. Is waste listed in Subpart D of 40 CFR 261? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, provide waste codes, regulated hazardous constituent(s), and an explanation of determination.)	
Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Codes: This waste is F001 listed for Trichloroethylene (TCE). Process knowledge and analytical results have shown TCE occurring in the ground water in amounts as much as 32 ppm. Analytical data obtained from sampling. Process knowledge indicates the source of the TCE is a spent solvent used in degreasing.	
7. Is waste characteristic per Subpart C of 40 CFR 261? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, provide waste codes, regulatory subcategory, and an explanation of determination.)	
Attachment included: <input type="checkbox"/> Yes <input type="checkbox"/> No Codes: _____	
8. If hazardous, is the waste excluded for recycling in accordance with 40 CFR 261.2(a)(1)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, regulatory citation: _____)	
9. Is the waste mixed or low level? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, include attachment with isotopic information.)	
10. Is waste TSCA regulated for either of the following? PCBs: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Asbestos: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>B. Evaluation of Underlying Hazardous Constituents (UHCs)</b>	
Does the waste require evaluation in accordance with 40 CFR 268.48? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, identify UHCs.) UHCs: _____ Attachment included: <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>C. Disposition and Data Gap Evaluation: (Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Proposed Disposition (storage, treatment, disposal pathway): Land Disposal at Private Sector Subtitle C Landfill or the INEEL CERCLA Disposal Facility (ICDF)	STP ID (mixed only): ID-CERCLA-MW
2. Will this waste be treated in a <90 storage area? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, attach plan.) (Mixed and Hazardous Only)	
3. Is the information provided adequate for complete waste determination, management, transportation, treatment, and disposal of waste? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, identify additional information or analysis required.)	
<b>D. Verification requirements: (Attachments included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Will verification be performed on this waste? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, describe the verification to be performed.)	
2. What is the verification frequency?	
At Initial Storage Location: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Immediately Prior to Shipment: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

# INEEL WASTE DETERMINATION & DISPOSITION FORM (WDDE)

435-39  
03/03/2000  
Rev. 04

F-125

**E. Packaging and Transportation Requirements (to be completed by P&T):** Complete this section only if wastes are to be transported.

1. Is waste a DOT Regulated Hazardous Material?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes: DOT Primary Hazard:	DOT Subsidiary Hazard:
2. Recommended Packaging:			
3. Probable Basic Description (PSN, Hazard Class, DOT ID #: PG):			
4. Other Information (special shipping conditions, etc.):			
5. If containers are already generated, are they packaged correctly for the DOT hazard class? <input type="checkbox"/> Yes <input type="checkbox"/> No If No, list container required.			

T-794 P 010/019

Packaging & Transportation Name Typed/Printed		Packaging & Transportation Signature		Date
Summary of Waste Determination:		<input checked="" type="checkbox"/> Mixed Low-Level (see codes listed above)	<input type="checkbox"/> Low-Level <input type="checkbox"/> Conditional Industrial <input type="checkbox"/> Other (describe)	

## CERTIFICATIONS

I certify that the information in Section III of this form and the applicable attachments are fully disclosed and accurate. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified.

WGS Technical Specialist Name Typed/Printed Lawrence Izzo	WGS Technical Specialist Signature <i>Lawrence Izzo</i>	Date 1/22/03
WGS Independent Reviewer Name Typed/Printed John Harris	WGS Independent Reviewer Signature <i>John Harris</i>	Date 1/22/03

Low Level Waste Hazardous Waste Determination Review Name Typed/Printed	Low Level Waste Hazardous Waste Determination Review Signature	Date
---	--	------

## Additional Narrative Information (As Needed):

This is an updated revision of the previous waste determination of the spent IX resin. Previous spent IX resin containers have been decontaminated due to incineration at WEHF. This waste determination was based on knowledge of Process and analytical data from TAN Multimediation Exchange/Activated Carbon sampling event WGS-001-02 (8/02-9/02). The waste in its present storage location is regulated by CERCLA, if/when it is removed for treatment at a TSDF it becomes RCRA regulated. The waste stream is to be reviewed annually.

FROM-

JUL-26-2004 15:32

# INTELL WASTE DETERMINATION & DISPOSITION FORM (WDDDF)

03/03/2000  
Rev. 04

## General Instructions:

Waste Stream Name: TAN GWTF LDR compliant sludge

Material Profile Number: 4304N

WDDF Number (Optional): TAN-670

Change #: 100667343

## Waste Stream Contacts

Contact:	Name	E-Mail	Phone	MS	Contact:	Name	E-Mail	Phone	MS
Generator:	Lee Nelson	lnelson	6-3093	3940	Technical Specialist:	Larry Izzo	lizzo	6-3719	9210
Facility Rep.:	Marshall Marfor	marfor	6-2581	6610	Independent Reviewer:	John Harris	jharris	6-3481	5324 2510

## SECTION I: PROCESS KNOWLEDGE EVALUATION (Completed by the generator with assistance from the Facility Representative)

1. Waste Generation Location: Facility: TAN Building/Room: N/A Area: OU1-07B If applicable: Container #: \_\_\_\_\_ Type/size: \_\_\_\_\_

2. Process and Waste Description: (Attachment included: ☐ Yes ☒ No)  
 This waste stream is comprised of sludge and sediment from the TAN Groundwater Treatment Facility (GWTF). This sludge came from the bottom of three different tanks in the GWTF. The tanks, along with the other GWTF components such as piping and cargo containers, were removed as part of a D&D action in February 2004. The material was removed from the tanks prior to decommissioning of the tanks. The groundwater that was stored in these tanks carries a RCRA listed waste code of F001 for Trichloroethylene (TCE). It is also considered radioactively contaminated, and therefore is considered mixed low-level waste (MLLW). This sludge will also carry the same F001 code and be considered MLLW. Corn cob absorbent material was used in the removal of this sludge to absorb any free liquids in the tanks. Small pieces of debris, such as PPE, are also mixed in with this waste stream.  
 Since the levels of TCE in this waste stream are below the LDR treatment standard of 6 ppm, this waste will be LDR compliant and eligible for direct disposal. The planned pathway for this waste is direct disposal at the IODF landfill.

3. Were any waste minimization activities a part of this process: ☐ Yes ☒ No (If Yes, provide description or reference.)

4. Generation Status: ☐ Anticipated ☒ Existing ☐ Routine operations ☒ Cleanup/Stabilization Activities ☒ One Time Only ☐ On-going ☐ Secondary

5. Other generation information: This waste stream has been already generated.

Physical Description (check all that apply): Color: ☐ Solid ☐ Organic Liquid ☐ Aqueous Liquid ☒ Sludge ☐ Aerosol ☐ Gas Cylinder ☐ Multi-Layered  
 Sources used for process evaluation (e.g. MSDS, operational logs, procedures, analyses): Analytical data

8. Waste Characteristics: Note: The waste characteristics may not be known at time of initial determination. If required for treatment or characterization, those parameters will be identified at a later date.

Liquids	Solids	All
a. pH (aqueous only): <input type="checkbox"/> < 2 <input type="checkbox"/> ≥ 12.5 Exact <input type="checkbox"/> > 2 or < 12.5	i. Asbestos: If yes, is it friable? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	n. PCBs: If Yes, provide concentrations (actual & source) in composition table. PCBs Bulk Product? (40 CFR 761.62)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
b. Flash Point: <input checked="" type="checkbox"/> NA	j. Pyrophoric (Water Reactive) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	o. Sulfide ≥ 500 mg/kg <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
c. Total suspended solids <1% <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	k. Free liquids: If Yes, quantify volume % <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	p. Cyanide ≥ 250 mg/kg <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
d. Is total organic carbon <1% <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		q. Oxidizer <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
e. Furning Acid/Acid Gases <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA		r. Treatment Residue <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA



# WASTE HAZARD DETERMINATION & DISPOSITION FORM (WDDDF)

03/03/2000  
Rev. 04

Waste Stream Name: **TAN GWTF LDR compliant sludge** Material Profile Number: **4304N**

f. Pyrophoric (Air Reactive)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
g. Water Reactive	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA

9. Waste Composition: (Must total 100%). Attachment included: ☐ Yes ☒ No ☐ NA

Constituent	CAS No.	Analysis or PK	Range (If constituent is <1%, use mg/kg or mg/L, otherwise report in %)	Used as a Solvent? (Y/N)	Comments
TCE	79-01-6	Analysis	From 0 To 0.026 mg/kg	Y	
solids	N/A	PK	93 vol %	N	
small debris	N/A	PK	0 2 vol %	N	
com cob absorbent	N/A	PK	3 5 vol %	N	

10. Radiolabels: Are radiolabels present? ☒ Yes, If Yes, refer to attachment ☐ No, If No, include signed form 435.02  
**SECTION II: PROBABLE WASTE TYPE:** (Completed by the Facility Representative and used to assign waste technical specialist and for appropriate management until final waste determination is made.)

Based on evaluation of the process and available data the waste type indicated is (check all that apply):

<input type="checkbox"/> Hazardous Only	<input checked="" type="checkbox"/> Mixed	<input type="checkbox"/> Radioactive Only	<input type="checkbox"/> Conditional Industrial	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Material Exchange	<input type="checkbox"/> Lab Pack	<input type="checkbox"/> Non-conditional Industrial	<input type="checkbox"/> TSCA	<input type="checkbox"/> Other - Describe:
<input checked="" type="checkbox"/> Recyclable:	<input type="checkbox"/> Non Radioactive Lead (>99+ % Lead)	<input type="checkbox"/> Lead Batteries	<input type="checkbox"/> RCRA Scrap metal	<input type="checkbox"/> Other - Describe:

Indicated Waste Codes: F001

## CERTIFICATION

I certify that the information in Section I of this form and the applicable attachments are fully disclosed. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified. The WGS Facility Representative, based on information provided, has assigned a probable waste type in Section II.

Generator Name Typed/Printed <b>Lee Nelson</b>	Signature <i>Lee Nelson</i>	Date <b>5/18/04</b>
Facility Representative Name Typed/Printed <b>Marshall Marfor</b>	Signature <i>Marshall Marfor</i>	Date <b>5/18/04</b>

# WASTE DETERMINATION & DISPOSITION FORM (WDDF)

03/03/2000  
Rev. 04

<b>SECTION III WASTE DETERMINATION AND DISPOSITION</b> (Completed by the WGS Technical Specialist)	
<b>A. Waste Determination</b>	
1. Is this a solid waste (per 40 CFR 261.2)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, attach regulatory citation)
2. Is this a Hazardous Waste (per 40 CFR 261.3)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Is waste excluded from regulation under 40 CFR 261.4?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Regulatory citation:
4. Is waste subject to 40 CFR 268 regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, is the waste a: <input type="checkbox"/> Waste Water or <input checked="" type="checkbox"/> Non Wastewater. Is there a specified method of treatment? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, list the specified method:
5. Is waste listed in Subpart D of 40 CFR 261.7?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, provide waste codes, regulated hazardous constituent(s), and an explanation of determination.) Attachment included: <input type="checkbox"/> Yes <input type="checkbox"/> No Codes: F001 This waste is F001 listed for Trichloroethylene (TCE). TCE has been detected in the TAN groundwater at concentrations up to 32 ppm. However, analytical data shows the levels of TCE are below LDR regulatory limit of 6 ppm.
6. Is waste characteristic per Subpart C of 40 CFR 261.7?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, provide waste codes, regulatory subcategory, and an explanation of determination.) Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Codes:
7. If hazardous, is the waste excluded for recycling in accordance with 40 CFR 261.2(e)(1)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, regulatory Citation:
8. Is the waste mixed or low level?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, include attachment with isotopic information.)
9. Is waste TSCA regulated for either of the following?	PCBs: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Asbestos: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>B. Evaluation of Underlying Hazardous Constituents (UHCs)</b>	
Does the waste require evaluation in accordance with 40 CFR 268.48?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, identify UHCs.) UHCs: Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>C. Disposition and Data Gap Evaluation: (Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Proposed Disposition (storage, treatment, disposal pathway):	Direct disposal at ICDF STP ID (mixed only): ID-CERCLA-MW
2. Will this waste be treated in a <90 storage area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, attach plan.) (Mixed and Hazardous Only)
3. Is the information provided adequate for complete waste determination, management, transportation, treatment, and disposal of waste?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If No, identify additional information or analysis required.
<b>D. Verification requirements: (Attachments included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Will verification be performed on this waste?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, describe the verification to be performed. ICDF verification sampling
At Initial Storage Location: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Immediately Prior to Shipment: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2. What is the verification frequency? one-time	

# WASTE DETERMINATION & DISPOSITION FORM (WDDDF)

03/03/2000  
Rev. 04

**E. Packaging and Transportation Requirements (to be completed by P&T): Complete this section only if wastes are to be transported.**

1. Is waste a DOT Regulated Hazardous Material? ☐ Yes ☐ No If Yes: DOT Primary Hazard: DOT Subsidiary Hazard:

2. Recommended Packaging:

3. Probable Basic Description (PSN, Hazard Class, DOT ID #, PG):

4. Other information (special shipping conditions, etc.):

5. If containers are already generated, are they packaged correctly for the DOT hazard class? ☐ Yes ☐ No If No, list container required.

Packaging & Transportation Name Typed/Printed		Packaging & Transportation Signature		Date
Summary of Waste Determination:		<input type="checkbox"/> Hazardous (see codes listed above)	<input checked="" type="checkbox"/> Mixed Low-Level (see codes listed above)	
		<input type="checkbox"/> Low-Level	<input type="checkbox"/> Conditional Industrial	<input type="checkbox"/> Other (describe)

## CERTIFICATIONS

I certify that the information in Section III of this form and the applicable attachments are fully disclosed and accurate. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified.

Larry Izzo WGS Technical Specialist Name Typed/Printed	<i>Larry Izzo</i> WGS Technical Specialist Signature	5/18/04 Date
John Harris WGS Independent Reviewer Name Typed/Printed	<i>John Harris for John Harris per tele. 5/18/04</i> WGS Independent Reviewer Signature	5/18/04 Date
Low Level Waste Hazardous Waste Determination Review Name Typed/Printed	Low Level Waste Hazardous Waste Determination Review Signature	Date

Additional Narrative Information (As Needed):

The waste will at least need to be repackaged for shipping. The bottles containing the sludge are loose inside a 55 gallon drum.

T-784 P 014/019 F-125

FROM JUL-26-2004 15:34

# WASTE STREAM DETERMINATION & DISPOSITION FORM (WDDF)

03/03/2000  
Rev. 04

## General Instructions:

Waste Stream Name: OUI-7B LDR Compliant Debris

Material Profile Number: 2473.R1

WDDF Number (Optional): TAN-637

Charge #: 100867343

## Waste Stream Contacts

Contact:	Name	E-Mail	Phone	Pager	MS	Contact:	Name	E-Mail	Phone	Pager	MS
Generator:	Lee Nelson	lnelson	6-3093		3940	Technical Specialist:	Larry Izzo	lizzo	6-3719	7730	9210
Facility Rep:	Marshall Marlor	mmarlor	6-2581	8610	9210	Independent Reviewer:	John Harris	jharris	6-3461	5324	3921

## SECTION I: PROCESS KNOWLEDGE EVALUATION (Completed by the generator with assistance from the Facility Representative)

1. Waste Generation Location: Facility: TAN Building/Room: GWTF Area: OUI-07B If applicable: Container #: \_\_\_\_\_ Type/size: \_\_\_\_\_

2. Process and Waste Description: (Attachment Included: ☒ Yes ☐ No)  
This waste stream consists of LDR compliant debris generated during the maintenance and installation of TAN ground water wells, decommissioning the Ground Water Treatment Facility (GWTF) tent, and contaminated debris from the In Situ Bioremediation (ISB) field laboratory. This work was performed under a CERCLA remedial action for Operable Unit 1-07B. Wastes include re-sized tanks, piping (carbon steel, galvanized, PVC, and stainless steel), valves, pumps and parts, flanges, fittings, plastic hoses, electrical wiring and cabling, poly tubing, carboys, empty bottles, sampling equipment, PPE, rags, and wipes. This debris came into direct contact with an F001 listed waste source, the contaminated groundwater at TAN, and therefore carries the F001 RCRA listed code. However, based on evaluation of analytical data, process knowledge, and potential for organic contamination still associated with these items; the waste is determined to meet LDR treatment standards (see attached comments and hard copy profile for supporting documentation). Since the ground water that these items came into contact with is radiologically-contaminated, this debris is being managed as mixed low-level waste. Inorganic TCLP metals analysis was also performed; concentrations detected were below RCRA regulatory levels.

3. Were any waste minimization activities a part of this process: ☒ Yes ☐ No (If Yes, provide description or reference.)  
INEEL/EXT-03-00286 Rev.0 section 5.5

4. Generation Status: ☐ Anticipated ☒ Existing ☐ Routine operations ☒ Cleanup/Stabilization Activities ☐ One Time Only ☒ On-going ☐ Secondary

## 5. Other generation information:

Physical Description (check all that apply): Color: ☒ Solid ☐ Organic Liquid ☐ Aqueous Liquid ☐ Sludge ☐ Aerosol ☐ Gas Cylinder ☐ Multi-Layered

7. Sources used for process evaluation (e.g. MSDS, operational logs, procedures, analyses): Analytical data/ L&V closure reports, ASAP's, process knowledge (see attached sheets).

8. Waste Characteristics: Note: The waste characteristics may not be known at time of initial determination. If required for treatment or characterization, those parameters will be identified at a later date.

Liquids		Solids		All	
a. pH (aqueous only): <input type="checkbox"/> < 2 <input type="checkbox"/> 2-12.5 <input checked="" type="checkbox"/> Exact	Method: <input checked="" type="checkbox"/> NA	h. Asbestos: If yes, is it friable? <input checked="" type="checkbox"/> NA		n. PCBs: If Yes, provide concentrations (actual & source) in composition table. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
b. Flash Point: <input checked="" type="checkbox"/> NA	Method: <input type="checkbox"/> NA	i. Pyrophoric (Water Reactive) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	j. Cyanide $\geq$ 250 mg/kg <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	p. PCBs Bulk Product? (40 CFR 761.62)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
c. Total suspended solids $\leq$ 1% <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Method: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	q. Oxidizer <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		r. Sulfide $\geq$ 500 mg/kg <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
d. Is total organic carbon $\leq$ 1% <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Method: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			s. Cyanide $\geq$ 250 mg/kg <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	

Waste Stream Name: Q01-7B LDR Compliant Debris Material Profile Number: 2473.R1

ie. Fuming Acid/Acid Gases	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	k. Free liquids: If Yes, quantity volume %	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	r. Treatment Residue	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
if. Pyrophoric (Air Reactive)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	l. RCRA Debris (>60 mm) ( $\geq$ 50% by visual inspection) or non-RCRA Rubble	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	s. Explosive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
g. Water Reactive	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	m. Pyrophoric (Air Reactive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	t. Radioactive	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	u. Halogens (Cl, F, Br)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA

11. Waste Composition: (Must total 100%). Attachment Included: ☐ Yes ☒ No ☐ NA

Constituent	CAS No.	Analysis or PK	Range (If constituent is <1%, use mg/kg or mg/L, otherwise report in %)	Units	Used as a Solvent? (Y/N)	Comments
carbon, galvanized, pvc, and stainless steel piping and parts of various dimensions		PK	From 85 To 90	wt%	N	
carboys or empty containers, electrical cords, cables and fillings, HDPE Plastic		PK	5 To 10	wt%	N	
PPE, wipes, tape, bag filter rings, buckets, plastic bottles and rubber Hose		PK	5 To 10	wt%	N	
pumps, flanges, valves		PK	5 To 10	wt%	N	
TCE	79-01-6	PK	0 To 0.91	ppm	Y	
absorbent material		PK	0.01 To 0.02	wt%	N	

12. Radioisotopes: Are radioisotopes present? ☒ Yes, if Yes, refer to attachment ☐ No, if No, include signed form 435.02

SECTION II: PROBABLE WASTE TYPE: (Completed by the Facility Representative and used to assign waste technical specialist and for appropriate management until final waste determination is made)

(based on evaluation of the process and available data the waste type indicated is (check all that apply):

<input type="checkbox"/> Hazardous Only	<input checked="" type="checkbox"/> Mixed	<input type="checkbox"/> Radioactive Only	<input type="checkbox"/> Conditional Industrial	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Material Exchange	<input type="checkbox"/> Lab Pack	<input type="checkbox"/> Non-conditional Industrial	<input type="checkbox"/> TSCA	<input type="checkbox"/> Other - Describe:
<input type="checkbox"/> Recyclable:	<input type="checkbox"/> Non Radioactive Lead (>99+ % Lead)	<input type="checkbox"/> Lead Batteries	<input type="checkbox"/> RCRA Scrap metal	<input type="checkbox"/> Other - Describe:

Indicated Waste Codes: F001

03032000  
Rev. 04

T-125 T-125 P-017/019 T-784

Waste Stream Name: **OU1-7B LDR Compliant Debris** Material Profile Number: **2473.R1**

**CERTIFICATION**

I certify that the information in Section I of this form and the applicable attachments are fully disclosed. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified. The WGS Facility Representative, based on information provided, has assigned a probable waste type in Section II.

Lee Nelson Generator Name Typed/Printed	Long for Lee Nelson Signature	2/18/04 Date
Marshall Marlor WGS Facility Representative Name Typed/Printed	<i>Marshall Marlor</i> WGS Facility Representative Signature	2/18/04 Date

FROM- 16-2004 15:35



SECTION III WASTE DETERMINATION AND DISPOSITION (Completed by the WGS Technical Specialist)	
<b>A. Waste Determination</b>	
1. Is this a solid waste (per 40 CFR 261.2)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, attach regulatory citation)
2. Is this a Hazardous Waste (per 40 CFR 261.3)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Is waste excluded from regulation under 40 CFR 261.4?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, Regulatory citation: _____)
4. Is waste subject to 40 CFR 268 regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, is the waste a: <input type="checkbox"/> Waste Water or <input checked="" type="checkbox"/> Non Wastewater. Is there a specified method of treatment? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, list the specified method: _____)
5. Is waste listed in Subpart D of 40 CFR 261?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, provide waste codes, regulated hazardous constituent(s), and an explanation of determination.)
Attachment Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Codes: This waste will be F001 listed for Trichloroethylene (TCE). The groundwater at TAN is known to be contaminated from a known waste source used as a degreasing solvent. This gives the groundwater at TAN that has a concentration of TCE greater than 5 ug/L a F001 listing. Since the contaminated groundwater that came in contact with the this debris is greater than 5 ug/L, the debris will be F001 listed waste.	
6. Is waste characteristic per Subpart C of 40 CFR 261?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, provide waste codes, regulatory subcategory, and an explanation of determination.)
Attachment Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Codes: _____	
7. If hazardous, is the waste excluded for recycling in accordance with 40 CFR 261.2(e)(1)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, regulatory Citation: _____)
8. Is the waste mixed or low level?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, include attachment with isotopic information.)
9. Is waste TSCA regulated for either of the following? PCBs: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Asbestos: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>B. Evaluation of Underlying Hazardous Constituents (UHCs)</b>	
Does the waste require evaluation in accordance with 40 CFR 268.48?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, identify UHCs.) UHCs: _____ Attachment Included: <input type="checkbox"/> Yes <input type="checkbox"/> No
<b>C. Disposition and Data Gap Evaluation: (Attachment Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Proposed Disposition (storage, treatment, disposal pathway): Direct Disposal at the CDF	STP ID (mixed only): ID-CERCLA-MW
2. Will this waste be treated in a <90 storage area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, attach plan.) (Mixed and Hazardous Only)
3. Is the information provided adequate for complete waste determination, management, transportation, treatment, and disposal of waste?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If No, identify additional information or analysis required.
<b>D. Verification requirements: (Attachments Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Will verification be performed on this waste?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If Yes, describe the verification to be performed. Physical verification of waste inventory is done on each container prior to packaging.
At Initial Storage Location: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Immediately Prior to Shipment: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
2. What is the verification frequency?	one-time only for each container

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**E. Packaging and Transportation Requirements (to be completed by P&T): Complete this section only if wastes are to be transported.**

1. Is waste a DOT Regulated Hazardous Material? ☐ Yes ☐ No If Yes: DOT Primary Hazard: DOT Subsidiary Hazard:

2. Recommended Packaging:

3. Probable Basic Description (PSN, Hazard Class, DOT ID #, PG):

4. Other Information (special shipping conditions, etc.):

5. If containers are already generated, are they packaged correctly for the DOT hazard class? ☐ Yes ☐ No If No, list container required.

Packaging & Transportation Name Typed/Printed		Packaging & Transportation Signature		Date
Summary of Waste Determination:		<input type="checkbox"/> Hazardous (see codes listed above)	<input checked="" type="checkbox"/> Mixed Low-Level (see codes listed above)	
		<input type="checkbox"/> Low-Level	<input type="checkbox"/> Conditional Industrial	<input type="checkbox"/> Other (describe)

# CERTIFICATIONS

I certify that the information in Section III of this form and the applicable attachments are fully disclosed and accurate. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified.

Larry Izzo WGS Technical Specialist Name Typed/Printed	<i>Larry Izzo</i> WGS Technical Specialist Signature	2/18/04 Date
John Harris WGS Independent Reviewer Name Typed/Printed	<i>John Harris for John Harris per telecon</i> WGS Independent Reviewer Signature	2/18/04 Date

Low Level Waste Hazardous Waste Determination Review Name Typed/Printed	Low Level Waste Hazardous Waste Determination Review Signature	Date
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Additional Narrative Information (As Needed):

This WDDF includes attachments that show statistical calculations of sample data and process knowledge data. These calculations include the average, standard deviation, standard error, and 95% upper confidence limit. These values are used to populate the analytical concentrations in the WTS waste profile. By attaching these calculation sheets to this WDDF, it ensures that they will be reviewed by the Independent Reviewer prior to signing off.



## General Instructions:

Waste Stream Name: TAN Groundwater Field Lab, Analytical Residuals (F001)

Material Profile Number: 3319N

WDDF Number (Optional): OU1-07B GWTF 001

Charge #: 3XNCC4F05

## Waste Stream Contacts

Contact:	Name	E-Mail	Phone	MS	Contact:	Name	E-Mail	Phone	MS
Generator:	Rick Carroll	carre	6-1746	3551	Technical Specialist:	Lawrence P. Izzo	izzo-lr	6-3719	9210
Facility Rep.:	Joel Duling	duljw	6-1994	7095	Independent Reviewer:	John D. Harris	jharris	6-3461	3921

## SECTION I: PROCESS (KNOWLEDGE EVALUATION (Completed by the generator with assistance from the Facility Representative))

1. Waste Generation Location: Facility: TAN	Building/Room: GWTF	Area: laboratory	If applicable: Container #: Various	Type/size: various
2. Process and Waste Description: (Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No) This waste will be generated at the Groundwater Treatment Facility (GWTF) Field Laboratory. Water samples will be collected and analyzed to support the TAN Groundwater In-Situ Elutriation Treatability Study. This waste stream will include unaltered excess samples, analyzed samples, and rinsate from the following analysis: 1) Dissolved oxygen; 2) Carbon dioxide; 3) Iron; 4) Ammonia; 5) Phosphate; 6) Alkalinity; 7) Bromide; 8) BART; 9) Iodide; 10) Hydroxide standards and rinsate; 11) bleach and bleach rinsate. The waste will be generated in support of a CERCLA action and will be CERCLA derived waste; it will be stored at the GWTF CERCLA Waste Storage Area (CSWA). The waste will be F001 listed with no "D" waste codes. NOTE: A nickel nitrate solution may be used when sulfide interference exists in the Bromide and Iodide analyses. In this case, the rinsate from these analyses will be included in the waste stream covered by material profile 3320N.				
3. Were any waste minimization activities a part of this process: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, provide description or reference.) Care is taken to use only the amount of materials required to correctly perform the analysis.				
4. Generation Status: <input type="checkbox"/> Anticipated <input checked="" type="checkbox"/> Existing <input checked="" type="checkbox"/> Routine operations <input type="checkbox"/> Cleanup/Stabilization Activities <input type="checkbox"/> One Time Only <input checked="" type="checkbox"/> On-going <input type="checkbox"/> Secondary				
5. Other generation information: This waste will be generated to support of a CERCLA clean-up				
6. Physical Description (check all that apply): Color: various <input type="checkbox"/> Solid <input type="checkbox"/> Organic Liquid <input checked="" type="checkbox"/> Aqueous Liquid <input type="checkbox"/> Sludge <input type="checkbox"/> Aerosol <input type="checkbox"/> Gas Cylinder <input type="checkbox"/> Multi-Layered				

7. Sources used for process evaluation (e.g. MSDS, operational logs, procedures, analyses): Review of laboratory procedures, Test Kit instructions and MSDSs, and Hazardous Waste Determination OU 1-07B TAN Groundwater Remediation Field Lab Residuals Bioremediation Treatability Study prepared by Michael D. Jorgensen.

8. Waste Characteristics: Note: The waste characteristics may not be known at time of initial determination. If required for treatment or characterization, those parameters will be identified at a later date.

Liquids		Solids		All	
a. pH (aqueous only): <input checked="" type="checkbox"/> < 2 <input type="checkbox"/> ≥ 12.5 <input checked="" type="checkbox"/> > 2 or < 12.5 Exact	Method: Process Knowledge <input checked="" type="checkbox"/> NA	b. Asbestos: if yes, is it friable? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	n. PCBs: if Yes, provide concentrations (actual & source) in composition table PCBs Bulk Product? (40 CFR 761.62)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
b. Flash Point: <input checked="" type="checkbox"/> NA	Method: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	i. Pyrophoric (Water Reactive) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	o. Sulfide ≥ 500 mg/kg p. Cyanide ≥ 250 mg/kg q. Oxidizer	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
c. Total suspended solids <1%	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	j. Flammable Solid <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
d. Is total organic carbon <1%	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA			<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	

# LINEEL WASTE DETERMINATION & DISPOSITION FORM (WDDF)

03/03/2000  
Rev. 04

Waste Stream Name: TAN Groundwater Field Lab. Analytical Residuals (F001) Material Profile Number: 3319N

e. Fuming Acid/Acid Gases	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	k. Free liquids: If Yes, quantity 0 to 10 volume %	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	r. Treatment Residue	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
f. Pyrophoric (Air Reactive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	l. RCRA Debris (>60 mm) ( $\geq$ 50% by visual inspection) or non-RCRA Rubble	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	s. Explosive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
g. Water Reactive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	m. Pyrophoric (Air Reactive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	t. Radioactive	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
				u. Halogens (Cl, F, Br)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA

11. Waste Composition: (Must total 100%). Attachment included: ☐ Yes ☒ No ☐ NA

Constituent	CAS No.	Analysis or PK	Range (If constituent is <1% use mg/kg or mg/L, otherwise report in %)	Used as a Solvent? (Y/N)	Comments
Aqueous liquid waste with TCE		PK	From 100 To 100 % wt.	NA	

12. Radiolscopes: Are radiolscopes present? ☒ Yes, If Yes, refer to attachment ☐ No, If No, include signed form 436.02

SECTION II: PROBABLE WASTE TYPE: (Completed by the Facility Representative and used to assign waste technical specialist and for appropriate management until final waste determination is made.)

Based on evaluation of the process and available data the waste type indicated is (check all that apply):

<input checked="" type="checkbox"/> Hazardous Only	<input checked="" type="checkbox"/> Mixed	<input type="checkbox"/> Radioactive Only	<input type="checkbox"/> Conditional Industrial	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Material Exchange	<input type="checkbox"/> Lab Pack	<input type="checkbox"/> Non-conditional Industrial	<input type="checkbox"/> TSCA	<input type="checkbox"/> Other - Describe:
<input type="checkbox"/> Recyclable:	<input type="checkbox"/> Non Radioactive Lead (>99+ % Lead)	<input type="checkbox"/> Lead Batteries	<input type="checkbox"/> RCRA Scrap metal	<input type="checkbox"/> Other - Describe:

Indicated Waste Codes: F001



# INTEL WASTE DETERMINATION & DISPOSITION FORM (WDDF)

03/03/2010  
Rev. 04

Waste Stream Name: TAN Groundwater Field Lab. Analytical Residuals (F001) Material Profile Number: 3319N

## CERTIFICATION

I certify that the information in Section I of this form and the applicable attachments are fully disclosed. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified. The WGS Facility Representative, based on information provided, has assigned a probable waste type in Section II.

Riena Carroll Generator Name Typed/Printed	 Signature	8/20/02 Date
Joel Dulling WGS Facility Representative Name Typed/Printed	 WGS Facility Representative Signature	8/29/2002 Date

SECTION III WASTE DETERMINATION AND DISPOSITION (Completed by the WGS Technical Specialist)	
<b>A. Waste Determination</b>	
1. Is this a solid waste (per 40 CFR 261.2)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, attach regulatory citation)
2. Is this a Hazardous Waste (per 40 CFR 261.3)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
3. Is waste excluded from regulation under 40 CFR 261.4?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, Regulatory citation: _____)
4. Is waste subject to 40 CFR 268 regulations?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, is the waste a: <input checked="" type="checkbox"/> Waste Water or <input type="checkbox"/> Non Wastewater. Is there a specified method of treatment? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, list the specified method: _____)
5. Is waste listed in Subpart D of 40 CFR 261?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, provide waste codes, regulated hazardous constituent(s), and an explanation of determination.) Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Codes: F001 This waste is F001 listed for Trichloroethylene (TCE). TCE has been detected in the TAN groundwater at concentrations up to 32 ppm. The source of the TCE is known to be from a listed waste source.
6. Is waste characteristic per Subpart C of 40 CFR 261?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, provide waste codes, regulatory subcategory, and an explanation of determination.) Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
7. If hazardous, is the waste excluded for recycling in accordance with 40 CFR 261.2(e)(1)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, regulatory Citation: _____)
8. Is the waste mixed or low level?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, include attachment with isotopic information.)
9. Is waste TSCA regulated for either of the following?	PCBs: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Asbestos: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>B. Evaluation of Underlying Hazardous Constituents (UHCs)</b>	
Does the waste require evaluation in accordance with 40 CFR 268.48? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, identify UHCs.) UHCs: None Attachment included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>C. Disposition and Data Gap Evaluation: (Attachment Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Proposed Disposition (storage, treatment, disposal pathway):	Returned to TAN Groundwater via New Pump and Treat Facility (NPTF) or INEEL Off-Site contracted facility.
2. Will this waste be treated in a <90 storage area?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If Yes, attach plan.) (Mixed and Hazardous Only)
3. Is the information provided adequate for complete waste determination, management, transportation, treatment, and disposal of waste?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If No, identify additional information or analysis required.)
<b>D. Verification requirements: (Attachments Included: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No)</b>	
1. Will verification be performed on this waste? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, describe the verification to be performed. At time of packaging)	
2. What is the verification frequency? when generated	
At Initial Storage Location: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Immediately Prior to Shipment: <input type="checkbox"/> Yes <input type="checkbox"/> No	

**E. Packaging and Transportation Requirements (to be completed by P&T):** Complete this section only if wastes are to be transported.

1. Is waste a DOT Regulated Hazardous Material? ☒ Yes ☐ No If Yes: DOT Primary Hazard: CLASS 9 DOT Subsidiary Hazard: TRACE RACONOLIDES

2. Recommended Packaging: UN 1A1 Specification Drums

3. Probable Basic Description (PSN, Hazard Class, DOT ID #, PG): HAZARDOUS WASTE, LIQUID, N.O.S., (FOO), 9, NA3082 PG III

4. Other information (special shipping conditions, etc.): Leakproof Spill Containers

5. If containers are already generated, are they packaged correctly for the DOT hazard class? ☒ Yes ☐ No If No, list container required

LORNEY L. NATE Lorney L. Nate  
Name Typed/Printed Signature  
Packaging & Transportation  
Date 8/13/02

Summary of Waste Determination:	<input type="checkbox"/> Hazardous (see codes listed above)	<input checked="" type="checkbox"/> Mixed Low-Level (see codes listed above)	<input type="checkbox"/> Low-Level	<input type="checkbox"/> Conditional Industrial	<input type="checkbox"/> Other (describe)
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### CERTIFICATIONS

I certify that the information in Section III of this form and the applicable attachments are fully disclosed and accurate. A good faith effort has been put forward to acquire and verify the information. Willful or deliberate omissions have not been made, and all known and suspected hazards have, to the best of my knowledge, been identified.

Lawrence P. Izzo Lawrence P. Izzo  
WGS Technical Specialist Name Signature  
Typed/Printed  
Date 8-15-02

John D. Harris John D. Harris  
WGS Independent Reviewer Name Signature  
Typed/Printed  
Date 8-14-02

Low Level Waste Hazardous Waste Determination Review Name Low Level Waste Hazardous Waste Determination Review  
Typed/Printed Signature  
Date

### Additional Narrative Information (As Needed):

This waste determination was based on knowledge of Process, Test Kit Instructions, Test Kit MSDSs, and internal report "Hazardous Waste Determination QJ 1-07B TAN Groundwater Remediation Field Lab. Residuals Bioremediation Treatability Study" prepared by Michael D. Jorgensen, Lance N. Peterson, Robert C. Starr. The waste at its present storage location is regulated by CERCLA, if/when it is removed and sent to a TSFD for treatment it becomes regulated by RCRA. The waste stream is to be reviewed annually.